



## REMOVABLE AND STOWABLE WHEEL STANDS FOR CONVERTIBLE CHILDREN'S CARRIER DEVICES

### RELATIONSHIP TO OTHER APPLICATIONS

0001 This application is a continuation-in-part of U.S. Patent Application Serial No.: 09/604,769 filed on June 28, 2000, as well as divisional application Serial No.: 10/323,892 filed on December 20, 2002.

0002 Shapiro's previous U.S. Applications include Serial Nos: 09/271,274 filed on March 17, 1999, now U.S. Patent No.: 6,220,611, granted April 24, 2001.

### FIELD OF INVENTION

0003 The present invention relates to removable and stowable wheel stands or chocks that allow for convenient conversion of child's fun cars and various related wheeled carrier devices from rolling devices to fixed, non-rolling devices for use with infants and toddlers at a stage in life where parents do not desire that the fun car device roll but rather desire that the infant or toddler play with said device where it is in a stationary status. The invention allows for selective removal of the wheel stands from one or more wheels of said devices, and also provides that the wheel stands may be fully stowed while connected to a wheel and/or stowed when detached from said wheel, in a compartment that is part of the carrier device itself.

### BACKGROUND OF THE INVENTION

0004 In continuation-in-part U.S. Application Serial No.: 09/604,769, filed on June 28, 2000, and a divisional application, Serial No.: 10/323,892, filed on December 20, 2002, applicant disclosed new and unique methods to provide for children's fun cars and carrier devices which are convertible between a fold-flat condition and an operative condition where the child may play with the device and

move it along a rolling surface. There is a desire among parents as well as toy manufacturers to provide for a longer life for infant and toddler toys such that the toys may be used during different stages of a child's life. Moreover, consumers also demand products that can fold flat. This particular invention allows for removable and stowable wheel stands so that parent has further options for a child's toy device such that when a parent desires to use such a device in a status where it is stationary, one or more wheel stands may be applied to the existing wheel of the fun car. The fun car is then convertible to where the wheel and wheel stand may both fold into a flat profile for storage or transport. The invention allows for the wheel stands to be folded when attached to a wheel or tire, or alternatively allows the wheel stand to be detached and stowed to a compartment in the vehicle itself. Further, when the toddler reaches a stage where the parent would like to use the convertible device on a rolling basis, the parent may stow the wheel stand or discard the wheel stand and simply use the device as a child's rolling fun car. The overall device may also be convertible to a fold-flat condition where it may be stowed or transported.

#### SUMMARY OF THE INVENTION

0005 This application provides refinements so that a wheel stand or chock is resiliently retained to a wheel or tire of a carrier device so that the stand prevents the device, in an operative condition, from rolling movement, allowing a parent to have the child play with the device as a stand-up, stationary toy. The invention allows the parent or consumer to also fold the device flat with the wheel stand still connected to the wheel or tire. Alternatively, the invention allows the parent to remove the wheel stand and to stow it via retention to any other part of the device, or in a compartment of the stowed device also. The invention provides for simple methods to connect the wheel stands to a typical wheel or tire and provides

several alternative enhancements and refinements relating to retaining and stowing the wheel to a wheel stand, including use of a bolt or semi-permanent screws, which bolts and screws may further be used to retain the stowed stands to the carrier devices. The stowed stands also may include any suitable non-skid material or substance on the surface intended to contact the rolling surface.

0006 Further features and advantages of the present invention will be set forth in, or apparent from, the detailed description of preferred embodiments thereof which follows:

#### BRIEF DESCRIPTION OF THE DRAWINGS

0007 Figure 1 is a side elevational profile of one wheel stand affixed to a convertible carrier device along the rear wheel and both figures 1 and 2 together are the suggested cover figures;

0008 Figure 2 is a top plan view of the fully folded convertible carrier device including the wheel stands affixed to the rear wheels, with certain attributes omitted for simplicity;

0009 Figure 3 is a top plan view of two rear wheels and wheel stands of the convertible carrier device depicted in Figure 2, but broken away with further detail shown;

0010 Figure 4 is an end elevational view, partly in cross section, focusing on the pivoting wheel assembly and wheel stand;

0011 Figure 5 is a further end elevational view, focusing on the wheel stand and wheel and the connection method for the wheel stand;

0012 Figure 6 is a top plan view of one side of a wheel embodiment;

0013 Figure 7 is a top plan view of a wheel stand, highlighting certain features.

## DESCRIPTION OF THE PREFERRED EMBODIMENTS

0014 Referring to the drawings, the following are descriptions of the numbered elements included herein:

1. Carrier device
2. Wheel
3. Rolling surface
4. Axle
- 4A. Angled axle
5. Wheel stand
6. Finger access cavity
7. Wheel rim cavity
8. Wheel stand protrusion
- 8A. Wheel stand protrusion - alternate
9. Wheel stand alternate shaping
10. Carrier base protrusion
11. Panel access opening
12. Trunk lid
13. Hood lid
14. Pivoting wheel axle assembly
15. Seat back
16. Dashboard
17. Steering wheel
18. Floor
19. Bolt
20. Semi-permanent retention element
21. Nut
22. Non-skid material

## X. Wheel stand storage position

0015 Referring to figures 1 and 2 is shown a carrier device, 1, which is a convertible carrier device which in an operative position is a fun car carrier device which rolls along a rolling surface, and which when converted to a stowed status may be folded flat and conveniently transported, hung on a wall, etc. Though not shown here, the carrier device may operate on foot, pedal, battery or motive power. Alternatively, the device may employ fixed axle wheels (not shown).

0016 In Figure 1, a seat back, 15, and the typical dashboard, 16, with steering wheel, 17, are shown in an operative position. These elements fold into the side elevational profile of the device, which is not shown here. Further, in this particular embodiment, the carrier device, 1, includes four wheels, 2 (although the device may include a lesser number of wheels). One embodiment of wheel stand, 5, is shown secured to one rear tire, 2. As shown by letter "A", the stand, 5, may be of an abbreviated nature ending at line "A" or may include a more full embodiment which surrounds the main part of a tire or wheel, 2, as shown by the continuation of the ghost perspective around the wheels, 2. Any suitable axle may be utilized, although in this particular embodiment, a goose-neck type one-sided axle, 4, is shown on each of the tires, 2. The convertible carrier device, 1, includes pivoting wheel axle assemblies, 14, which may include any suitable latching method which permits the wheels to be moved from the operative position shown in Figure 1 to a stowed position shown in Figure 2 where the stowed wheel, 2, is moved to completely within the side elevational profile of said carrier device, 1.

0017 Referring to Figure 2, the wheels, 2, are shown in their stowed position, and in this particular embodiment, the innovative wheel stands, 5, are shown affixed to the rear wheels, 2, only. There are numerous embodiments of the wheel

stand, 5, which may be utilized, and as shown again by the dotted line "A", the wheel stand, 5, may take an abbreviated form above-mentioned, or may instead take a form in which they surround the majority of the tire, 2, as shown by the ghost broken line perspective of stand, 5, in Figure 2. The wheel stands may include one or more finger access cavities, 6, which allow for the user to lift and move the wheel and interconnected wheel stand conveniently from any position. In Figure 2, letter "X" shows an abbreviated embodiment of the stand, 5, in a special detached, but stowed status in a compartment area adjacent to the floor, 18, of said carrier device, 1. In this manner, the consumer may remove the wheel stand, 5, from the position of attachment to a tire, 2, and stow it along any suitable portion of the carrier device floor, 18. Not shown are suitable protrusions (although cavities may instead be utilized), 10, which are created of a suitable portion of the floor, 18, of said device, allowing the wheel stands to be stowed without interfering with the stowing or setting up of the wheels, 2. Suitable protrusions or cavities molded from the floor or from the side wall of the carrier device, 10, (not shown) may match with any suitable protrusion or cavity on the wheel stand, 5, including a resilient connection with one or more of the finger access cavities, 6. However, as shown in Figure 2, the entire profile of the carrier device, 1, is in an ultra-thin status and may be hung on a wall or placed for transport in the trunk of a vehicle.

0017 Further, Figure 2 shows, in ghost perspective, a simulated motor vehicle trunk lid, 12, as well as trunk handle opening, 11, which the user can manipulate to raise or lift the trunk lid, 12. In the embodiment shown, the wheels, 2, are mounted to axles, 4, which are in turn connected to pivoting wheel axle assemblies, 14, and the pivoting wheel axle assemblies, 14, axles, 4, and wheels, 2, are stowed under the lid of the trunk, 12. It is appreciated that instead the wheels may be stowed over the collapsed lid or under the level of the carrier

device base or floor, 18. Also shown in Figure 2 is the ghost perspective of the hood lid, 13, at the forward end of the carrier device which also includes an opening, 11. The user may lift the hood by virtue of the opening, 11, to gain access to the stowed wheels, 2, and pivoting wheel assemblies, 14.

0018 In Figure 3, there is a detached, broken-away perspective of the wheels, 2, and a broken line perspective shows a wheel axle perspective, 4, and alternate shaped wheel axle, 4-A. A pair of wheel stands, 5, are shown affixed to said wheels, 2. In one of the wheel stands, 5, there is shown a broken lined area denoted "A" which shows that the wheel stand, 5, may alternately be of a more abbreviated design along the line "A" and still include the flat aspect and the connection to the wheel, 2. Each of the wheel stands, 5, also include openings or holes, 6, which allow for finger access cavities in order to allow the user to manipulate the wheel stands when affixed to the tires, 2. Figure 3 shows two distinct methods by which the wheel stands, 5, may be connected to a typical wheel, 2. One side of the wheel stand may include protrusions (or alternately cavities) which cause resilient contact with matching protrusions or cavities of the associated wheel, 2. Accordingly, protrusions in the wheel stand, 5, may match with cavities on a wheel, 2, such as shown at Figure 6 as included with the recess shown at 7. As is also shown in Figure 3 an alternate shape or form of protrusion of the wheel stand, 5, is shown at 8-A. Further, as shown by the indication at 9, the wheel stand, 5, may be continued into a round shape on the side furthest away from the flat aspect of the wheel stand. If such a shaping is included as shown at ghost perspective, 9, the shaping may proceed around the wheel axle itself since the wheel stand, 5, is designed to stop rolling rotation of the wheel, 2.

0019 Figure 4 shows an end elevational view of a wheel, 2, and a ghost perspective of one embodiment and shape of a wheel stand, 5, with the lowest, flattened aspect of the wheel stand adjacent to the rolling surface, 3, which may

include any suitable non-skid material, 22, glued on or affixed to the wheel stand by any suitable method, including screws. At least two wheel stand protrusions, 8, are shown although any particular series (of male-female retention elements) may be employed to resiliently retain the wheel stand, 5, to an associated wheel, 2. The wheel stand is closely adjacent to the axle, 4, in Figure 4 and thus there may be resilient contact between a portion of the axle if desired. In this perspective, the axle is shown traveling inside the pivoting wheel axle assembly, 14, by ghost perspective. A portion of the wall or floor of the carrier device is shown at 1 in this figure. Figure 4 also shows that one or more bolts, 19, may be employed and mounted to, or passed through, the wheel stand, 5, to secure the stand, 5, to a wheel, 2. A bolt semi-permanent retention element, 20, (like a resiliently applied washer) may surround the bolt, 19, and retain it to the stand, 5, and the bolt, 19, may snap, rotate, or screw into the stand, 5, and a further nut, 21, may optionally be applied if a cavity is opened through the wheel, 2.

0020 In regard to figures 5, 6, and 7, different perspectives are shown of the wheel, 2, and/or wheel stands, 5. Figure 5 again shows a detached perspective of a wheel, 2, the wheel stand, 5, and a series of protrusions from the wheel stand, 8, are in contact with the wheel, 2. Also the wheel stand, 5, is in contact with the rolling surface, 3, preventing rolling motion of the wheel 2. Figure 6 is a top plan view of one wheel embodiment, 2, showing a series of cavities, 7, to which the wheel stand, 5, interconnects (wheel stand not shown in Figure 6). Figure 7 again shows one embodiment of a wheel stand, 5, finger access cavities, 6, and another portion of the wheel stand which includes a series of protrusions, 8, which resiliently hold the wheel stand, 5, to an associated wheel, 2.

0021 It is appreciated that the general shape of the wheel stands may be modified in a number of particulars and so long as the wheel stand includes a flat aspect which prevents rolling movement of a tire, and so long as the shape of the wheel stand also permits

retention of the wheel stand to the associated tire, any other alternative shape of the wheel stand may be employed. Also, two or more wheel stands may be included. Also, Figure 2 shows one potential location for a wheel stand that has been removed from an associated wheel, 2, and stowed in a position toward the rear of the carrier device. Any suitable location for the detached wheel stand may be utilized, including a location anywhere else on the top surface of the carrier device or in another location adjacent to any part of the base member whether above or below the floor of the carrier device. The stands are shown in combination with stowable wheels, but may be used in conjunction with other fixed axle, non-foldable wheeled devices as well. Further, although not shown, an opening may be molded from the device floor to permit a user's legs to pass through to the rolling surface to allow foot propulsion.